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Town of Apple Valley Water Utility Purchase Plan
Reviewing the Evidence

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Summary

Next month the citizens of the Town of Apple Valley will consider a bond issuance of up to $150 million dollars. The raised funds would then be used to purchase the local water agency, Liberty Utilities, Apple Valley (LUAV), from its current private sector owner (the Canadian firm Algonquin Power & Utilities, operated by AQN's American subsidiary, Liberty Utilities) through an eminent domain action. This action is not unheard of. Indeed Missoula, MT recently finalized the eminent domain action to purchase their water agency from the same corporation.

The Town of Apple Valley's staff (hereafter Town) has prepared a number of informational reports showing the financial feasibility of this effort and the impact it would have on the local community. These results have been criticized both by the current management of the water agency as well as by John Husing, Economist and operator of Economics & Politics, Inc. I have been asked to review both the financial models of the Town along with the criticisms leveled at these plans. My opinions from this review are as follows;

1. The financial modeling done by the Town is very reasonable. They use very conservative assumptions and look at a range of potential outcomes. Their findings suggest that the acquisition of the water system makes financial sense for the Town and for ratepayers in the community. Most importantly, there is plenty of room for error. While any investment carries with it some inherent risk of failure, the probability that this investment will harm rate payers in the town seems very small given the evidence I have seen.
2. The Town's modelling not only looks well done, it falls into line with what even basic economic intuition would tell us about such a transaction. Moving this utility from private to public ownership would reduce or completely erase two important expenses currently being paid by Apple Valley rate payers, taxes and capital costs. Public ownership would eliminate taxes that otherwise would have to be paid to the Federal and State governments. The fact that Apple Valley has a substantially better credit rating than Algonquin Power & Utilities (A vs BBB-) implies that the utility's

cost of capital under public ownership would be reduced as well (for example the interest rate on borrowed funds would be reduced).

3. While these cost savings are very real, it might be argued that they could be more than offset by a loss of efficiency that often comes with public ownership. The problem with this argument is that the value of the free market is extracted over time through the forces of competition. There is no competition in the Apple Valley water market. This is a regulated monopoly regardless of whether it is under private or public ownership. Indeed, it might be argued that the system could be better run under local control since rate payers will be electing those who will oversee the operation of the utility, providing some direct incentive for efficiency and cost reduction. Now, with ultimate ownership lying in Toronto Canada, there is little recourse for rate payers over rate hikes or cost inefficiencies. The most direct evidence for such potential cost savings comes from the fact the rate payers in the cities around Apple Valley with public water utilities all pay substantially less for their water than those in Apple Valley.
4. The critique by Dr. Husing, at best, strains credulity. He uses completely unrealistic assumptions in his modelling. His conclusions are based on an assumption of a 5.25% to 7.25% bond rate, a range that is almost completely outside of current financial market expectations. He also assumes that at best the Town will end up paying $150 million for the utility, the absolute maximum the bond issuance allows for. He justifies this high number on a mistaken interpretation of the purchase price of the three utilities from the Carlyle Group in 2015. In reality this amount is much greater than any realistic estimate of what the actual purchase price will end up being. As such his conclusion that the bond measure "could cost consumers an extra $502 or $620 per year" has no credibility.[1] He also makes a number of other vague critiques regarding the Town's ability to handle the management of the utility and the costs involved with doing so—critiques that also seem to have little basis in fact.
5. Similarly, the critiques of Mr. Sorensen and Mr. Penna from Liberty Utilities also seem inconsistent with the facts. They indicate that the Town's estimates of cash flows from the utility are over stated—yet fail to support this assessment with any hard evidence. If the profits from running this water agency were as low as they would seem to be indicating, they should be more than happy to sell the operation to the Town within the ranges indicated by the various valuation reports. And ultimately their claims of low profitability completely contradict the underlying assumptions being used by Dr. Husing in regards to the potential purchase price.

The basis of these opinions are laid out in the following report.

[1] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 10

Analysis

Whether the purchase of the utility makes financial sense for the Town and rate payers boils down to a basic comparison—the ongoing costs for servicing the debt the Town will take on for the purchase relative to the net operating surplus of running the utility. The primary question is whether the latter is larger than the former, thus providing surpluses to the Town or equivalently allowing the Town to provide rate relief to rate payers. On this basis, there are really three major numbers that feed into the cost-benefit analysis.

- The purchase price of the utility itself, as will be determined during the eminent domain process.
- The interest rate the Town borrows at to fund the purchase.
- The net revenues the utility would generate for the Town.

The Town used reasonable numbers to plug into these various inputs in coming up with their range of potential outcomes.

Purchase Price

Clearly the value in two years is unknown today, but we do have some good benchmarks that can help us create a range. Start with the utility's own Rate Base in 2015, $58.4 million.[2] To be clear a Rate Base is defined as "the value of property on which a public utility is permitted to earn a specified rate of return, in accordance with rules set by a regulatory agency. In general, the rate base consists of the value of property as used by the utility in providing service."[3]

There may well be a number of technical issues with this valuation that would not make it a perfect metaphor for the eventual purchase price. However, it is worth noting that the Liberty Utilities has every incentive to make that value as high as possible for the purpose of establishing an overall higher profit, since they are compensated on the basis of a 'fair return' on this value. That suggests that it is likely to be somewhat on the high side. That jibes well with the appraisal that was done for the Town that valued the utilities at slightly over $50 million in 2015.[4]

These numbers also line up well with certain recent market transactions. Liberty itself was purchased from the Carlyle Group for approximately $255 million in late 2015 and included not only Apple Valley's water utility but two other utilities of roughly the same size in Missoula, Montana and eastern Los Angeles County, California. The utility in Montana was purchased in November of 2016 for 88.7 million through an eminent domain action.[5]

[2] Town of Apple Value PPT "Financing the Purchase of the Water Company – within the existing rates" April 25 2017
[3] https://en.wikipedia.org/wiki/Rate_base_(utility)
[4] Town of Apple Value PPT "Financing the Purchase of the Water Company" May 5 2017
[5] Town of Apple Value PPT "Financing the Purchase of the Water Company" May 5 2017

It is unclear how the three utilities factor into the total purchase price paid by AQN, since each utility has its own user rates and wholesale costs. But then given that they are regulated utilities with guaranteed returns on value, we can assume the profits on each utility are roughly correlated with their respective sizes. Apple Valley's water utility has 20,000 of the 74,000 connections represented in the 3 utility purchase.[6] As such a reasonable estimate would be that the local water utility represents roughly 27% of the purchase price—roughly $75 million, higher than the other estimates but still below what the Town is expecting to pay, an amount in the $80 to $100 million range.

Of course the purchase process has many steps—and it is likely that it wouldn't be wrapped up until 2019. What is the probability that there be massive appreciation in the value of the asset between now and then? This is always a tough question, since it ultimately becomes a financial asset price forecast—a tough thing to do given the volatility we have seen in recent decades.

But it is worth noting that the great bull stock market run petered out in 2015, and since then the markets have only seen a small bump early this year. Most financial analysts think the market is at or close to a top level given slow economic growth outlooks and rising Federal Funds rates. This all suggests that the pace of appreciation over the next two or three years will be modest and ultimately this in turn implies that the Town's budgeted estimate of the $80 to $100 million is almost assuredly to be on the high side of potential outcomes in the eminent domain action.

In stark contrast, Dr. Husing's dismal outlook for the Town's purchase plan in his report is based on his assumption of very high purchase price paradoxically along with considerably higher interest rates than current rates.[7] Start with his assumptions on the purchase price of the utility. Husing's modelling starts with a minimum expected purchase price of $150 million, the maximum borrowable amount in Measure F. On the high end, he inexplicably chooses an amount of $200 million, greater than the allowable amount to be borrowed by the Town.

His justification for these higher numbers does not stand up under scrutiny. He supports his range in part on an erroneous interpretation of the purchase of the three utilities from the Carlyle Group in 2015. Total consideration received by Carlyle was for $327 million, but there was an assumption of $77 million in debt by the buyer.[8] This implies that the three utilities were purchased for a cash amount of $250 million, $327 in total consideration minus the $77 in debt transfers.[9] Husing inexplicably adds the $77 million to the $327 million in consideration to arrive at a highly inflated cash purchase value of $404 million.

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[6] https://www.law360.com/articles/579147/algonquin-agrees-to-pay-327m-for-regulated-water-utilities
[7] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 6
[8] https://www.carlyle.com/media-room/news-release-archive/algonquin-power-utilities-corp-announces-closing-previously
[9] The higher final amount of $257 million used by the Town in its modelling is probably related to transaction costs incurred by the buyers such as commissions.

His higher figure is derived from a local Blue Ribbon Committee from 2011 that "worried" about the potential for such a high figure.[10] How such a panel derived this number, and who was on the committee that would actually be qualified to make such an assessment is completely unknown, and as such this hardly seems credible evidence.

Interest Rates

The second major issue to consider is the interest rate the Town will borrow at. There were three rates the Town considered—4% which is the current market rate, 2% if the Town is able to borrow funds through the State's Revolving loan fund, and finally a high of 4.75% to account for an upward drift in rates over the next two years or so until the purchase goes through. To see how these different rates impact the servicing costs, consider the estimated annual bond payments under all three scenarios at $70 million and $100 million. The ranges run from $3.2 million per year up to a high of $6.9 million.

Table 1: Annual Bond Payments[11]

	$70mm	$100m
State Funding: 2.00%	$3,192,613	$4,560,786
Current Rates: 4.00%	$4,613,698	$6,591,200
High Forecast: 4.75%	$4,820,127	$6,885,450

Dr. Husing uses different assumptions. His lowest rate is 4.5%, higher than current rates and then considers rates up to as high as 12%, the cap in the bonding measure.[12] Revealingly, Husing notes that an 8.25% rate "would be an unusually high rate"[13] in his report, but nevertheless still uses the 12% rate along with the $200 million purchase price in some of his calculations.

His conclusion at the end of his report suggests that the bond measure "could cost consumers an extra $502 or $620 per year".[14] This range is based on an estimate of a 5.25% to 7.25% bond rate along with the $150 million purchase price—as already noted much greater than any realistic estimate of the actual purchase price. To put Husing's rate expectations in context, the current rate on tax exempt bonds is roughly 4%. As such Husing's lower end expectation is that long run rates will rise by a minimum of 1.25% over the next two years with an upper bound of 3.25%. In contrast the Town's forecast range suggests that the increase in long run rates is 0% to .75%. This is, of course, only if they are unable to secure the State financing at the very low subsidized rate—an option Husing left out of his analysis completely.

How does one gauge these numbers for accuracy? One simple way to create a forward prediction is to consider the movements in the market in the recent past—say over the past

[10] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 6
[11] Town of Apple Value PPT "Financing the Purchase of the Water Company" May 5 2017
[12] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 6
[13] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 6
[14] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 10

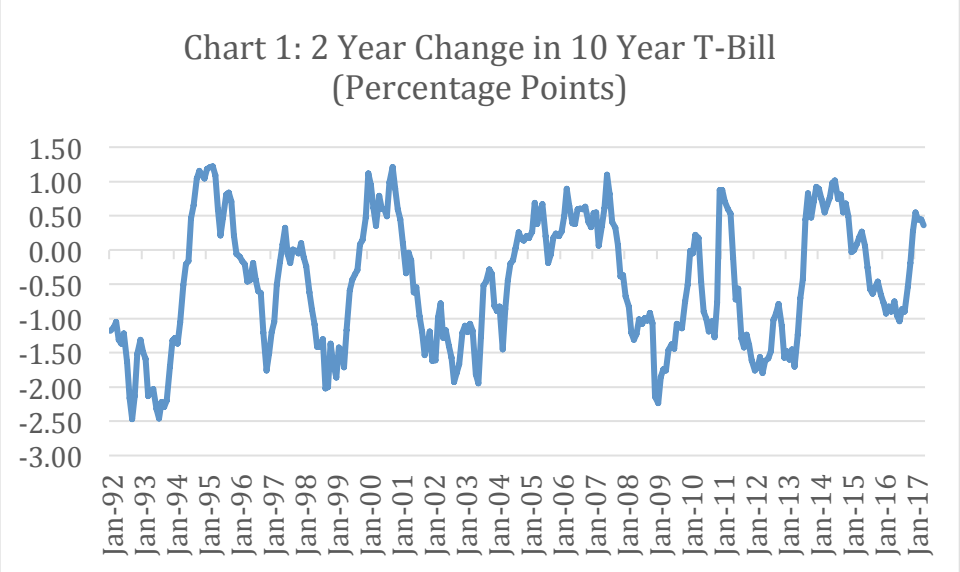
5 years. A simple range will look at the spread of current rates over the purchase of a 30-year treasury bond and apply that spread to the maximum and minimum rates on the 30-year T-bill over this 5-year time frame. This analysis is shown in the table below.

Table 2: Interest Rate Ranges 2012-2017[15]

	Rate 30 Year Treasury	Estimated Municipal Bond Rate
Current	2.94	4.00
Average	3.02	4.08
High	3.89	4.95
Low	2.23	3.29

If the near future looks like the recent past, a realistic range of potential bond rate changes would be in the -.7% to +1% range over current bond rates. The Town's range estimate is within the upper range of this band—in other words reasonable and conservative. The Town doesn't even allow for the possibility that long term rates may actually be somewhat lower in a year or two when in reality this is a potential outcome.

In contrast, Dr. Husing's predictions seem out of line with recent history. His low end of a 1.25% hike in rates suggests the 30-year treasury bill will almost certainly rise to and stay above 4% in the next couple years. The upper end of his predictions is a hike in long term rates that would put a 30-year treasury above 6%, a rate not seen in the US for almost two decades, going back until the late-90's. This is an aggressive forecast given that the last time the 30 year was at that level was in 2011.



[15] Source: Federal Reserve, UCR Forecast Center calculations

Is there a chance of such a sharp move in interest rates in the next two years? Recent history would suggest the answer is no. Chart 1 shows 2-year changes in the 10-year T-bill rate from 1992 to current times.[16] Over the past 25 years the large uptick in long term rates over a two year period is slightly over 1 percentage point—lower than Dr. Husing's *low-end* rate increase assumptions. The chance of an increase of over 3 percentage points is functionally zero.

Dr. Husing justifies this aggressive outlook by noting that "with the U.S. economy running at nearly full employment in 2017, interest rates have already begun to rise."[17] His implication is that an economy with low unemployment will have higher interest rates.

Table 3: Interest Rates and Unemployment[18]

	Treasury Rate- 10 year	U.S. Unemployment
Apr-88	8.72	5.40
Jun-90	8.48	5.20
Apr-98	5.64	4.30
Jan-01	5.16	4.20
Jan-06	4.42	4.70
Feb-08	3.74	4.90

Unfortunately, this conclusion again simply isn't supported by the historic evidence. The last three times the U.S. reached what we might call full-employment was in 1988, 1998 and 2006. These were periods of time, not unlike today, where unemployment hit bottom and then remained roughly steady until the next recession, in 1990, 2001 and 2008 respectively. In all three full-employment periods long-term interest rates actually declined rather than rising sharply. Dr. Husing's rationale for higher rates is simply incorrect.

And while it is true the Federal Reserve is currently in the midst of steadily raising the Federal Funds rate, any scholar of interest rates understands that the pass-through to long term rates is small. In short, this fact also doesn't support Dr. Husing's aggressive predictions at all. It is worth noting that since he released his reports long term interest rates have actually dipped.

This isn't to say that interest rates couldn't actually increase sharply over the next two or three years. If there is an unexpected surge in inflation or if the Federal government begins to borrow heavily to fund its proposed tax cuts then the bond market could turn sharply. But there is a critical feedback mechanism here that would alter the underlying dynamics of the purchase. Specifically, an unexpected sharp rise in interest rates will have in turn a

[16] The 10 year T-bill was used because of historical gaps in 20 and 30 year T-bill rates due to changes in Treasury policies
[17] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 6
[18] Sources: Federal Reserve, Bureau of Labor Statistics. Note that the 10-year rate was used due to gaps in the 20-year and 30-year time series.

negative impact on asset values because of higher discount rates. In other words, if rates were to rise to the levels predicted by Dr. Husing, this in turn should lower the market purchase price of the utility offsetting a significant portion of the increase in the annual cost of servicing the bonds. This is why assuming a high purchase price AND a high interest rate is paradoxical.

Apple Valley Water Utility Net Revenues

The last issue is the ability to fund the debt service payments through the operating surpluses (profits) the utility generates. The Town estimates again use very reasonable estimates—numbers take directly from the financial statements of the utility itself in 2015, the most recent data available since the utility has yet to file its 2016 financials with the CPUC.

There are three sources of profits for the Town if they purchase the utility. The first is the direct operating profits, roughly $4.3 million in 2015 according to the CPUC filing. The second will be the tax savings that will occur due to the utility passing from private to public ownership. On net this comes in at roughly $3.6 million per year. Finally there is up to $4 million in potential cost savings the Town anticipates from reducing costs for outside vendors and from cutting overhead and executive costs out of the budget.

Table 4: Estimated Sources of Revenues[19]

Net Income from Rate Payers	$4,284,474
Net Tax Savings	$3,640,445
Other potential Gains	$4,000,000

Of these three sources, only the last is speculative. How much the Town will save on overhead and through the use of internal resources can be opined on, but there will be little certainty until the Town actually starts to run the utility. Indeed the letter from Mr. Sorensen and Mr. Penna from Liberty Utilities focuses largely on rebutting these figures.

But this doesn't matter. The $7.8 million in revenue flows that will come from the tax savings and current operational profits is almost assuredly more than enough to cover the bond payments under any reasonable set of circumstances, as per the data laid out in Table 1. And remember these are dated 2015 figures. Since this point in time there have been additional rate increases imposed on local rate payers by Liberty Utilities—revenues and net income today are surely even higher, although we cannot verify this since the 2016 income statements are yet to be filed with the CPUC as required.

As for the $4 million in speculative gains, we only need to note that *any* additional savings from these cost reductions would end up in reserves at the utility or passed on to rate payers in the form of reduced rates. In other words, if the Town only ended up with half of the potential savings (for example $2 million per year) then this only implies that the rate

[19] Town of Apple Value PPT "Financing the Purchase of the Water Company" May 5 2017

reductions would be smaller than hoped for. Under no reasonable circumstances do we foresee a situation where the Town would be forced to increase water rates.

There are really two critiques involved here coming from Dr. Husing and from Mr. Sorensen and Mr. Penna, managers at Liberty Utilities. The first is that the direct profitability of the utility is less than what the Town is estimating. The second is that the Town is simply not qualified to run a utility, and thus will diminish any potential revenue flows through incompetence.

The major point made is that the operating income will not be available for debt service, rather "[o]perating income is used to make capital improvements to the water system, which over the last five years has averaged approximately $6.2 million annually".[20] Dr. Husing also weighs in with the same point in a table labeled Exhibit 2, showing the investments made from 2012 to 2016.[21]

It is hard to verify the claims as to the nature and magnitude of these capital investments as we will come to, but that issue is largely irrelevant. Capital investments are not an expense by definition—rather they are additions to the capital stock of the utility that ultimately increases the capacity, efficiency and hence the potential profit of the operation. Claiming that these expenditures are expenses that reduce the profitability of the utility is comparing apples to oranges. It has nothing to do with whether profits will cover debt costs.

If these capital investments were to be counted as 'expenses' in the way that Husing, Sorensen and Penna suggest, then we would in turn view the 'profitability' of the utility as only slightly over $1 million per year. If profits were truly that low then the current owner of the water company should be more than willing to sell the operation to the Town for $50 million, they should be absolutely thrilled to part with such a low return asset for such a handsome price. The very fact they are protesting the potential eminent domain action of the Town suggests there is more profitability than they are willing to admit to.

Still—investments must be made, how would these costs be covered? There are two ways that such capital investments can be funded. The first is from the free cash flow not accounted for in the income statements as generated by depreciation expenses—an issue mentioned neither by Dr. Husing nor Mr. Sorensen and Mr. Penna from Liberty Utilities. For example, in 2015 Liberty Utilities claimed a depreciation expense of 3.19 million.[22] This decline in capital stock value was not 'paid for' out of revenues earned in any direct sense. It is simply a bookkeeping entry to acknowledge paper losses on past capital investments. These are free funds that would typically be rolled back into the firm through additional investments.

[20] Liberty Utility letter to Town of Apple Valley April 28, 2017
[21] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 2
[22] "Apple Valley 2015 Annual Report" page 7, downloaded from the CPUC website

A brief analysis shows that on average Liberty Utilities was claiming over $3 million in depreciation per year over the last few years. By itself this can cover over half of the average capital investments claimed by Dr. Husing and Liberty Utilities. As for the other half—if the investments indeed add to the value of the firm the Town would have no trouble borrowing additional funds to cover such investments as needed. Indeed, most firms use capital markets for investments.

This of course all assumes that Liberty Utilities is truly making these large capital investments they are claiming. The claim is that the utility made $7.8 million in capital investments in 2015—a number that can be backed out by the increase in the Gross Value of the plant that year from $124.4 to $131.3 million. Depreciation that year was $3.19 million. This implies the firm used $4.6 million of additional funds for capital investments. Yet the firm still managed to roll all of the $4.3 million in profits earned that year into retained earnings and didn't take on any debt according to their financial statement.

Table 5: Apple Valley Water Balance Sheet entries, 2015[23]

Retained Earnings Jan 1	$52,295,308
Retained Earnings Dec 31	$56,579,782
Difference	$4,284,474
Capital Investment	$7,875,308
Capital Depreciation	$3,190,495
Difference	$4,684,813

While I am not a CPA, I do have some knowledge in financial statements. It is unclear to me how they funded these investments, if they indeed occurred. The only major increase in liabilities was a note to another one of the water utilities—which would seem to have little to do with capital investments within the Apple Valley water system. And it is worth noting that these filed statements are not audited by accounting professionals—and as such aren't necessarily completely correct. As such we are left with little conclusive evidence as to what actually occurred.

The last critique is that the Town is simply not capable of running a utility properly, reducing its profitability. Husing states that residents should worry about "the Town of Apple Valley's ability to efficiently manage a complex new water system."[24] It is not a 'new' utility by any means. The town intends to maintain the operational and local management staff of the utility after their purchase—people who have been running the day to day operations of the plant for years. The only replacement would be one set of owners for another—something that has happened on two other occasions over the last decade with little seeming impact on the utility's ability to deliver water to rate-payers.

It might be argued that any increases in profits driven by the reduction in tax liabilities could be more than offset by a loss of efficiency that often comes with public ownership.

[23] "Apple Valley 2015 Annual Report" page 7, downloaded from the CPUC website
[24] "Review of Apple Valley Water Measure" John E. Husing Economics & Politics, Inc. page 4

The problem with this argument is that the value of the free market on efficiency is extracted over time through the forces of competition. There is no competition in the Apple Valley water market or indeed in any urban water district regardless of the ownership status. These are what is known as a natural monopoly, where only one firm can truly operate in an efficient manner due to steep economies of scale. Hence such operations are run only under the strict regulation of some public authority that controls rates—in this case the CPUC. Natural monopolies always have efficiency incentive problems created by a lack of competition regardless of whether it is under private or public ownership. And it must be remembered that the vast majority of U.S. residents are served by publicly owned water utilities.[25]

Indeed, it might be argued that the system could be better run under local control since rate payers will be electing those who will be overseeing the operation of the utility, providing some direct incentive for efficiency and cost reduction. Now, with ultimate ownership lying in Toronto Canada, there is little recourse for rate payers over rate hikes or cost inefficiencies.

Of course the best evidence is simply comparing what Apple Valley rate payers pay relative to nearby customers of public systems. As it turns out rate payers in the cities around Apple Valley with public water utilities all pay substantially less for their water than those in Apple Valley. Specifically, a recent state audit found that ratepayers of Apple Valley pay 57% more for their water than in Hesperia and 33% more than residents of Victorville.[26]

[25] http://efc.web.unc.edu/2016/10/19/public-vs-private-a-national-overview-of-water-systems/
[26] California State Auditor Report 2014-132 15 April 2015